

THE RHODE ISLAND MEDICAL JOURNAL



Owned and Published by the Rhode Island Medical Society. Issued Monthly

VOLUME XIV
No. 11

Whole No. 266

PROVIDENCE, R. I., NOVEMBER, 1931

PER YEAR \$2.00
SINGLE COPY 25 CENTS

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Issued Monthly under the direction of the Publication Committee

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ORIGINAL ARTICLES

ERYSIPELAS*

By DR. D. L. RICHARDSON

SUPERINTENDENT OF THE PROVIDENCE CITY HOSPITAL

Erysipelas accounted for 2,567 deaths in the United States Registration Area in 1927. In the same year there were only 2,440 deaths from scarlet fever. Assuming that the death rate for all ages from erysipelas is 10%, this would indicate that some 25,000 cases occurred in that year. Very probably this number is under-estimated rather than over-estimated. Any disease which causes that amount of illness and some 2,500 deaths annually is a disease of considerable importance.

In recent years one sees only occasionally a paper dealing with erysipelas. It is one of those familiar diseases which is rather well known to all physicians, and it has, perhaps, been taken for granted that there is little to be learned about its cause, epidemiology, symptomatology and treatment. However, our knowledge about it is incomplete enough to warrant much more study, particularly since it is an acute, transmissible disease.

Twenty-five years ago the cause of erysipelas was recorded confidently in most or all text books as the streptococcus erysipelatus. Observations in recent years have proved this to be false and that the disease may be caused by different strains of streptococcus, almost certainly of the hemolytic variety. Among 142 consecutive cases of erysipelas cared for at the Providence City Hospital from 1928 to 1931, in about 30% of them hemolytic streptococci were found in routine nose and throat cultures. This number of cases of erysipelas included all forms, although facial erysipelas was predominant. The incidence of the hemolytic streptococcus in routine nose and throat cultures of measles, diphtheria and whooping cough patients is from 5% to 10%.

Erysipelas has long been known as a transmissible disease and long since physicians have objected

to the presence of this disease in surgical wards. This fear is well founded. For years erysipelas was admitted to medical wards of general hospitals but at the present time more and more they are sent to an infectious disease hospital. This is, of course, unnecessary if a general hospital has a properly equipped and efficiently administered ward or wards for the care of acute infectious diseases.

Strange, and as unorthodox as it may seem, there are strong reasons to suspect some etiological relationship between scarlet fever, erysipelas and other serious infections arising among post-operative cases, and from accidental wounds. It is not uncommon in general hospitals to observe scarlet fever, erysipelas and surgical septicemic cases appearing simultaneously. This has often been noted in large obstetrical hospitals. There are few recorded reports of such outbreaks, either because of lack of interest or fear of publicity. It is exceedingly important to isolate not only erysipelas and scarlet fever but also streptococcus infections of all kinds. They are a potential menace to all other patients as well as to physicians and nurses. There is some reason to believe that if general hospitals would culture all new patients and isolate all hemolytic streptococcus carriers, as well as diphtheria carriers, there would be fewer surgical infections.

It is generally agreed that there must be some wound, however slight, through which the streptococcus enters the skin. Years ago I used to wonder why a typical case of facial erysipelas began on the nose. It is certainly more than a coincidence. For many years now every patient has been carefully questioned about having, previous to the erysipelas attack, either a head cold, a small sore or furuncle in the vestibule of the nose, and in the majority of cases some such history could be elicited. In reviewing the histories of 400 cases it was impossible to gather reliable data on this point, but it is evident that previous intranasal infection is the rule. Even in cases when a history cannot be elicited of such intranasal infection, some, and perhaps all, can be explained by the presence in the nose of hemolytic streptococci without symptoms, which gained entrance into the lymphatics, by some unrecognized abrasion inside the nose. Sometimes a history of a

*Read before the Rhode Island Medical Society at the Annual Meeting, June 4th, 1931.

previous sore throat is elicited even though a rhinitis is absent.

Facial erysipelas may begin at other points such as the cheeks, lips, ears, forehead, neck and scalp. In each instance there is some abrasion of the skin, small pimple, otitis media or infection about the ear or in the aural canal, dacryocystitis or other infections about the eyes, accidental wounds of face and scalp, etc. Here again, there are strong reasons to believe that the hemolytic streptococci which enter such a wound usually come from the nose and throat. It is only rarely that a person develops erysipelas through a wound, and that sometimes is likely to coincide with the hemolytic streptococci carrier state. Suggestive is the fact that routine cultures of the nose and throat of erysipelas patients, whatever the location and type of infection, show such a high percentage of hemolytic streptococci in the nose and throat.

Erysipelas may begin on any other part of the body, particularly about the feet and legs, about the nipples in women, about the perineal region, etc. Post-operative erysipelas is quite common and infection may take place through accidental wounds. Here again the patient himself may be the source of infection by being, at the time, a streptococcus carrier. However, infection beginning on the covered portions of the body is probably less likely to be autoinfection. In the hospital it can, however, be theoretically ascribed to infection by the surgeon, nurses, or particularly other patients, faulty technique, etc.

The fatality rate from erysipelas varies with the age of the patient, the location of the disease and the type of infection. The rate among over 400 cases at the City Hospital was 10.2%. The lowest rate was in 1923 when it was 3.6 among 28 cases. The highest rates were in 1918 when the fatality rate was 24% among 25 cases and in 1926 when it was 24.2 among 33 cases. The general trend of fatality rate among these 400 cases has been downward. The fatality rate among 19 cases under one year of age was 42%. Among 48 patients from the end of the first year until the age of 20 there were no deaths.

	Cases	Fatality
From 20-30 years	43	2.3
From 30-40 years	70	8.6
From 40-50 years	77	11.7
From 50-60 years	74	6.7
Over 60 years	99	17.4

It is evident that the fatality rate is highest in infants and persons over 60 and that it is quite a

harmless disease from the end of one year to the age of 30.

Another important factor in prognosis is the extent of the disease. This is well borne out in the present series of cases. Among 229 cases observed since 1925 there were 23 deaths, a fatality rate of 9.9%. Among 152 cases in which the disease was confined to face and head there were 14 deaths, a fatality rate of 9.2%. Among 13 cases which began on face or head and spread to the body there were four deaths or a fatality rate of about 30%. Among 60 cases in which the disease began and was confined to the body and extremities there were five deaths or a fatality rate of 8.3%.

As in other acute infectious diseases the severity of the disease and the outcome depends, to a large extent, upon the virulence of the organisms concerned in the infection. Very probably the extent of the disease is governed by this factor, to some degree.

There is no way to determine exactly the average incubation period of erysipelas. Usually it is short, probably one to three days, or it may be a matter of hours only.

In a typical case of erysipelas beginning on the face, the first symptom is tenderness and redness of the nose which spreads rather rapidly out over the cheeks to the sides of the face and ears and up over the forehead to the scalp. The process may end at the scalp but more often involves the whole scalp. In rare instances it may extend down the neck and body. Along with the redness of the skin is swelling sufficient to close the eyes partly or completely. The cheeks and ears are also swollen and the scalp pits on pressure. The swelling of the face and scalp is not like the board-like resistance seen in subcutaneous cellulitis which is sometimes mistaken for erysipelas.

The temperature, which is of a picket fence type, keeps up as long as the disease progresses.

The disease lasts from 10 days to two weeks. Very often the progress of the disease ceases rather abruptly, in others the temperature falls by lysis. Not infrequently the process may light up again after several days of normal temperature. Such recurrences are quite common. The length of the disease is much greater when it spreads to the body and may last three or four weeks.

Erysipelas is particularly free from complications. In fatal cases a terminal bronchopneumonia is quite common, particularly in old people. In living cases the most frequent complication is multiple

abscesses of the skin involved in the inflammatory process. Septicemia, with its possible train of local septic infections, is rare.

The diagnosis of erysipelas from cellulitis is sometimes difficult at the beginning of the disease but the subsequent course makes it easy unless the erysipelas is rather limited in extent. Another disease, called erysipeloid, rarely recognized in this country but quite common in Europe, is sometimes confused with erysipelas. Erysipeloid is attended with slight symptoms and the spreading erythema is attended with only slight oedema of the skin. Now and then eczema and other skin diseases are confused with erysipelas, but the lack of constitutional symptoms and fever clarifies the diagnosis.

The number of preparations used in the treatment of erysipelas is legion. There is no internal medication or external application which will limit the spread of the disease. Like other acute infectious diseases it is self limiting. Why it stops at a certain point, or continues to spread over a much larger area than usual, is unknown. It is possible that the anatomy of the skin and subcutaneous tissues may be a factor in some instances. More likely, the streptococci lose their battle with the defensive forces of the body. Certain local applications however are useful in diminishing the pain and tenderness and may limit the swelling, to some extent. Ice compresses of water, magnesium sulphate, boric acid, etc., are all useful. Apparently the cold is the important factor.

During recent years the serum treatment has come into quite general use. Both convalescent serum and commercial erysipelas serum are employed. While they are useful enough to warrant the trouble and expense of making them available, neither can be relied upon as a cure-all.

At the City Hospital the use of convalescent serum was begun in October, 1919, and it has seemed of sufficient value to continue its use up to the present time. The serum is obtained from patients who have had a frank case of erysipelas and who are in good physical condition. It is put up in doses of 20 to 25 c.c. and given intramuscularly. It is usually repeated at 12 to 24-hour intervals until the disease shows signs of letting up or until it seems that its use is of no value. Usually only one or two doses are given but in a few cases as many as seven or eight doses have been given. It is quite remarkable in some cases how quickly the disease will terminate. In others the progress of the disease seems to be unaffected. This, perhaps, is not to be

wondered at. There is no way of measuring the anti-body strength of the serum. The blood of some convalescent patients probably contains few antibodies, while in others they are much more numerous and it is quite possible that the strains which caused the disease in the donor and recipient may be quite dissimilar. For this reason it is important, when possible, to pool the serum of two or more donors. Even if the progress of the disease is not limited the patients often state that they feel better after a dose of serum.

The fatality rate among 117 cases which received convalescent serum was 7.7%. This includes all cases irrespective of location, severity and age distribution. It would appear that the fatality rate among convalescent serum treated cases was slightly less than the average fatality rate.

Much the same holds good for the use of commercial serum. It has a marked effect in some cases and is of little value in others, but is worth while if convalescent serum is not available. Serum sickness after its use must be expected quite frequently, but is less frequent than formerly because of the serum concentration. In this respect convalescent serum is to be preferred because serum sickness never occurs after administration. The intravenous use of either kind of serum is not justified except in desperately ill patients.

It is well recognized now that erysipelas patients are a menace to those who care for them, and to other patients in the hospital. They should be isolated and aseptic technique observed whether they are cared for in a general hospital or a contagious disease hospital.

RETINAL HEMORRHAGES AFTER BLOOD-TRANSFUSION*

SIXTY CASES IN WHICH THE RETINAE WERE
EXAMINED BEFORE AND AFTER TRANSFUSION

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In 1926 G. A. Schaly of Holland reported three cases of impairment of vision soon after blood-transfusion which had been done on account of pernicious or aplastic anemia. (*Nederlandische Tydschrift v. Geneesk.*, Vol. II, pp. 965-968, abstracted

*Read before the Providence District Society, June 1, 1931.

J. A. M. A., Vol. 86, p. 1955, June 19, 1926.) In one case the eyes were examined before the transfusion and there was no trace of hemorrhage. Guist of the Lindner Clinic in Vienna, lecturing to students (1929), said of retinal hemorrhages in primary anemia, "They are often seen after transfusion."

Between April 1, 1930, and Feb. 1, 1931, we examined the eyes of 60 patients immediately before transfusion and again 12 to 24 hours after the transfusion; 59 of them were in the wards of the Rhode Island Hospital, one was seen at the Providence Lying-In Hospital. The cases were not picked; we examined them as our colleagues on various services, co-operating with us, gave us opportunity. We present the results in a table giving the age of the patient, presence or absence of fresh retinal hemorrhage after the transfusion, duration of bleeding where the patient was known to have lost blood, method of transfusion, blood-types (if known) of patient and donor, diagnosis and blood-findings. Of the total 60 cases fresh retinal hemorrhages were seen 12 to 24 hours after transfusion in 10 cases and we will give short clinical descriptions of these and a brief, partial analysis of some parts of the table.

Anemia was caused by acute hemorrhages in 32 cases (few hours up to three weeks), by chronic

hemorrhages in 10 cases (two months to two years). In 16 cases there was no history of hemorrhage and transfusions were given because of secondary anemia. In two cases there was no apparent anemia; transfusion was done for shock. In all, 73 transfusions were given: 1 case received 4, another 3, and 8 received 2. The citrate method was used 56 times and followed by retinal hemorrhage 9 times; the Unger (direct) method 17 times, followed 3 times by retinal hemorrhage. In adults about 450 c.c. was given at each transfusion; in children 250 to 300 c.c. Cross-agglutination was done in all cases and typing in many. There were 33 different diagnoses in the series; 9 cases of incomplete miscarriage—1 with retinal hemorrhage, 5 extrauterine pregnancy—none with retinal hemorrhage, 4 fibroid uterus—1 with retinal hemorrhage, 3 cancer of the cervix—1 with retinal hemorrhage, 3 lymphatic leukemia—all showing fresh hemorrhages in the retinae after transfusion, 2 post-partum hemorrhage—no retinal hemorrhage, 1 Banti's disease with retinal hemorrhage, 1 cancer of the stomach with hemorrhage in the retina and 1 each of 23 other conditions—none showing bleeding into the retina after transfusion. We saw no cases of primary anemia in this series. In none of these cases was there noted any anaphylactic reaction or bleeding from the kidneys or anuria.

Case	Age	Ret. Hem.	Dur. of Bldg.	Meth.	Blood Type		Diagnosis	Blood Counts
					Pat.	Don.		
1	4	Yes	2 weeks	3 Cit.	I	II, IV	Ac. Lymph. Leuk.	R.B.C. 1,350,000 to 3,200,000 W.B.C. 44,800 to 332,800
2	39	No	Ac. Int.	Cit.	Cross-agglut.		Tub. Preg.	R.B.C. 2,300,000 W.B.C. 20,000
3	34	No	Ac. Int.	Cit.	Cross-agglut.		Tub. Preg.	Not obtained
4	46	No	1 week	Cit.	IV	IV	Fibroid Uterus	R.B.C. 1,800,000; Hgb. 40%
5	4	No	1 day	Cit.	Cross-agglut.		Post-operative Hem. Tons. and Ads.	R.B.C. 1,960,000; Hgb. 30%
6	27	No	2 days	2 Cit.	Cross-agglut.		Puerperal Sepsis	R.B.C. 1,050,000; Hgb. 25%
7	26	Yes	2 months	1 Cit. 1 Unger	Cross-agglut.		Purpura Hemorrhagica	R.B.C. 1,450,000; 30 to 60%
8	22	No	1 day	Unger	Cross-agglut.		Hemophilia	None obtained
9	2½	No	Sec'nd'y Anem.	Unger	IV	IV	Empyema	None obtained
10	19	Yes	3 months +	Cit.	Cross-agglut.		Menorrhagia	R.B.C. 1,700,000; Hgb. 40%
11	43	No	3 weeks	2 Cit.	Cross-agglut.		Incomplete Miscarriage	None obtained
12	37	No	8 days	Cit.	Cross-agglut.		Post-Part'm Hemorrhage	3,500,000 to 1,700,000
13	40	No	2½ years	Cit.	II	II	Fibroid Uterus	R.B.C. 3,500,000; Hgb. 60%
14	32	No	3 weeks	Cit.	II	IV	Uxt. Uter. Preg.	None obtained
15	23	No	None	Cit.	IV	IV	Chr. Pel. Infl.	R.B.C. 2,850,000; Hgb. 65%
16	20	No	Ac. Int.	Cit.	IV	IV	Ext. Uter. Preg.	None obtained
17	48	No	Sec'nd'y Anem.	2 Cit.	IV	IV	Chr. Cholecyst Stone in Com. Duct	R.B.C. 2,000,000; Hgb. 40%
18	36	No	5 months	2 Cit.	Cross-agglut.		Cancer of Cervix	R.B.C. 3,320,000; Hgb. 40%
19	37	No	6 months	Unger	Cross-agglut.		Cancer of Cervix	R.B.C. 2,500,000; Hgb. 35%
20	38	No	2 weeks	Cit.	Cross-agglut.		Incom. Misc.	R.B.C. 2,100,000; Hgb. 40%

Case	Age	Ret. Hem.	Dur. of Bldg.	Meth.	Blood Type Pat. Don.	Diagnosis	Blood Counts
21	36	No	Sec'nd'y Anem.	Unger	Cross-agglut.	Canc. of Hd. of Pancreas	R.B.C. 3,200,000
22	35	No	Acute	Cit.	Cross-agglut.	Mult. Comp. Fractures, Leg	None obtained
23	27	No	5 months	Cit.	Cross-agglut.	Menorrhagia	R.B.C. 1,970,000; Hgb. 25%
24	28	No	6 months	Cit.	Cross-agglut.	Menorrhagia	R.B.C. 3,050,000; Hgb. 25%
25	33	Yes	1 week	Cit.	III III	Incomplete Miscarriage	R.B.C. 1,430,000; Hgb. 25%
26	5 mos.	No	Sec'nd'y Anem.	Unger	Cross-agglut.	Pylorospasm, Malnut.	None obtained
27	51	No	3 weeks	Unger	IV IV	Mucous Colitis, Toxemia	R.B.C. 2,050,000; Hgb. 15%
28	34	No	? if any	Unger	Cross-agglut.	Ulcerative Colitis	R.B.C. 2,500,000; Hgb. 50%
29	10 mos.	No	Sec'nd'y Anem.	Cit.	II II	Malnut., Sec'nd'y Anem.	R.B.C. 2,520,000; Hgb. 30%
30	8	Yes	?	Cit.	II IV	Lymph. Leuk.	R.B.C. 1,200,000; Hgb. 25%
31	34	No	3 days	Unger	IV	Incomplete Miscarriage	R.B.C. 1,426,000; Hgb. 25%
32	26	No	2 months	Unger	IV	Hyperplasia of Endomet	R.B.C. 2,820,000; Hgb. 50%
33	50	Yes	2 years	2 Unger	II II	Fibroid Uterus	R.B.C. 1,220,000; Hgb. 10%
34	40	No	2 months	Unger	Cross-agglut.	Fibroid Uterus	R.B.C. 2,400,000; Hgb. 45%
35	27	No	3 weeks	Unger	Cross-agglut.	Incomplete Miscarriage	R.B.C. 1,890,000; Hgb. 30%
36	26	No	Ac. Operative	Unger	Cross-agglut.	Tumor of Spinal Cord	None obtained
37	12	Yes	1 day	4 Cit.	Cross-agglut.	Banti's Disease	R.B.C. 1,000,000; Hgb. 30%
38	51	No	2 months	Cit.	II II	Intestinal Obstruction	None obtained
39	16	No	Sec'nd'y Anem.	Cit.	Cross-agglut.	General Sepsis, Pyemia	None obtained
40	3	Yes	?	Cit.	Cross-agglut.	Lymph. Leuk.	R.B.C. 1,350,000
41	20	No	Sec'nd'y Anem.	2 Cit.	III ?	Ulcerative Colitis	R.B.C. 1,176,000; Hgb. 30%
42	55	Yes	Sec'nd'y Anem.	Cit.	II II	Cancer of Stomach	R.B.C. 3,000,000; Hgb. 40%
43	38	No	1 day	Cit.	IV IV	Lung Abscess	None obtained
44	37	No	Ac. Int.	2 Cit.	II II	Ext. Preg.	R.B.C. 3,990,000; Hgb. 70%
45	36	No	Sec'nd'y Anem.	Cit.	Cross-agglut.	Abd. Trauma, Gen. Perit.	R.B.C. 4,060,000; Hgb. 70%
46	24	No	3 weeks	Cit.	Cross-agglut.	Inevit. Abortion	None obtained
47	49	Yes	1 year	Unger	II II	Cancer of Cervix	R.B.C. 2,500,000; Hgb. 40%
48	60	No	15 days	Cit.	II II	Duod. Ulcer	R.B.C. 2,400,000; Hgb. 25%
49	16	No	1 week	Unger	Cross-agglut.	Rheum. Fever	R.B.C. 3,600,000; Hgb. 50%
50	32	No	Operative Ac.	Cit.	Cross-agglut.	Nephrolithias	R.B.C. 3,250,000; Hgb. 50%
51	25	No	2 weeks	Cit.	Cross-agglut.	Septic Misc.	R.B.C. 2,200,000; Hgb. 35%
52	27	No	Operative Ac.	2 Cit.	Cross-agglut.	Int. Hem. Occlus. of Common Bile-Duct	None obtained
53	18	No	1 week	Cit.	II II	Incomplete Miscarriage	R.B.C. 2,050,000; Hgb. 40%
54	22	No	Sec'nd'y Anem.	Cit.	Cross-agglut.	Appendiceal Abscess	None obtained
55	36	No	10 days	Cit.	IV IV	Incomplete Miscarriage	None obtained
56	24	No	4 days	Cit.	IV IV	Incomplete Miscarriage	R.B.C. 2,230,000; Hgb. 40%
57	37	No	Sec'nd'y Anem.	Cit.	IV IV	Cause ?	R.B.C. 990,000; Hgb. 20%
58	30	No	2 weeks	Cit.	II II	Ret. Placenta, Post-Partum Hem.	R.B.C. 1,480,000; Hgb. 30%
59	31	No	1 week	Cit.	II IV	Incomplete Miscarriage	R.B.C. 1,660,000; Hgb. 30%
60	57	No	Sec'nd'y Anem.	Cit.	IV II	Abdominal Abscess, Secondary Anemia	R.B.C. 2,300,000; Hgb. 35%

Case I. Lymphatic Leukemia—Massive Pre-Retinal Hemorrhages Appearing After Blood-Transfusion

A 4-year-old white, Italian boy entered the Rhode Island Hospital with a diagnosis of acute lymphatic leukemia, onset one week before admission with ecchymotic areas on the body, swollen glands and fever, bloody stools the night before admission. Epistaxis on the day of admission. Examination showed generalized glandular enlargements and spleen and liver much enlarged. Blood-picture: Reds 3,220,000, Hgb. 60%, whites

332,800—preponderance of early lymphocytes. The child did poorly; glands suppurated and required incision and drainage, bleeding continued, necessitating blood-transfusion. Just previous to the transfusion, examination revealed a few small, streaked hemorrhages scattered in the nasal half of the left retina. Following this first transfusion (16 hours) several oval hemorrhages, in area from $\frac{1}{2}$ to 1 disc-size, some of them overlying small vessels, were seen in the eye. Following a second transfusion large pre-retinal hemorrhages, completely obscuring the maculae, were seen in both

eyes. A careful ophthalmoscopic examination was made just before this second transfusion; the small streaked hemorrhages seen previous to the first transfusion were no longer visible. Patient, type I, donors types II and IV. Blood was given by the citrate method.

Case 7. Purpura Hemorrhagica—Retinal Hemorrhages After Blood-Transfusion

A 26-year-old white Portuguese housewife entered the Rhode Island Hospital with the diagnosis purpura hemorrhagica, complaining of excessive vaginal flowing beginning at her menstrual period, two weeks before, and still continuing. Two months previous she noticed black-and-blue spots on her forehead and her gums bled. Examination revealed purpuric spots over the entire body and an enlarged spleen. Blood-picture: Reds 1,450,000, Hgb. 30%, W.B.C. 4,900. Diff count polys 60%, lymphocytes 34%, large mono's 7%. Coag. time, 4½ minutes. Blood clot not retractile.

There were two transfusions; following the first (citrate) streaked peri-papillary hemorrhages were seen in both eyes and three days later several oval hemorrhages, from 1/3 to 1½ disc-areas in size appeared, scattered irregularly in the mid-zone of the retinae. Twelve hours after the second transfusion fresh ovoid hemorrhages were seen in both retinae, some of them involving the macular regions, and the patient complained of poor vision. The second transfusion was by the Unger method, the first by the citrate method. The blood was not typed—cross-agglutination was used to determine the compatibility of the donors' blood.

Case 10. Essential Menorrhagia—Anemia—Retinal Hemorrhages Following Transfusion

A 19-year-old white Italian woman entered the Rhode Island Hospital with the diagnosis menorrhagia; three years before she had been in the hospital with the same complaint and her menstruation had been very irregular since then, sometimes skipping periods and then having two periods in one month with excessive bleeding. For three weeks she has been bleeding continuously from the vagina. She showed severe anemia with vomiting and fever. Blood: Reds 1,700,000, Hgb. 40%, W.B.C. 18,200 with 91% polys, 6% small lymphs., 2% large lymphs. and 1% large monos. Blood was not typed; cross-agglutination was carried out and transfusion was done soon after admission. Twelve hours

later we saw in the left eye two disc-diameters from the disc temporally and above, a diffuse hemorrhage, one disc-diameter in size, with a white center; two days later two discrete round hemorrhages, ¼ disc-diameter in size, near the macula of the right eye; one week later no hemorrhages were to be seen. Blood was given by the citrate method.

Case 25. Incomplete Miscarriage—Retinal Hemorrhages Following Transfusion

A 33-year-old white, Italian housewife entered the Rhode Island Hospital with an incomplete miscarriage, profuse vaginal bleeding for one week. Patient exsanguinated, with air-hunger. Bloods: Reds 1,430,000, Hgb. 25%. Placental tissue removed manually and then transfusion, citrate method, donor and recipient both type III. Twelve hours later a blotchy hemorrhage was seen in the right eye, 1½ disc-diameters temporally from the disc, ¾ disc-size, obscuring the underlying vessels. Five days later no fresh hemorrhages were seen in this eye but in the left eye at the disc-margin several small, streaked hemorrhages were seen.

Case 30. Lymphatic Leukemia—Multiple Abscesses—Retinal Hemorrhages After Transfusion

An 8-year-old white girl entered the hospital with a severe anemia, septic temperature curve and multiple abscesses. Blood studies showed lymphatic leukemia: Reds 1,220,000, Hgb. 20%, W.B.C. (diff.) polys 20%, lymphs. 80%. Transfusion, citrate method, patient type II, donor type IV. Sixteen hours later there were streaked hemorrhages in the deeper layers of the retina of the left eye, nasal side of the disc, none larger than ¼ disc-area.

Case 33. Leiomyoma of the Uterus—Secondary Anemia—Retinal Hemorrhages Following Transfusion

A 50-year-old white, female, American restaurant worker entered the Rhode Island Hospital with complaint of passing clots and flowing from the vagina over a two-year period at infrequent intervals. Examination showed the uterus enlarged halfway to the umbilicus, hard, irregular and movable. Following hysterectomy (reds 1,220,000, Hgb. 10%) she had two transfusions by the Unger method. After the first transfusion (16 hours) in the right eye there was seen, about two disc-diameters nasally from the disc, a half-disc size, blotchy hemorrhage

with a white center, and a small, streaked hemorrhage just below the macule. After the second transfusion these were seen to be smaller and there was no fresh hemorrhage. Patient type II, donor type II.

Case 37. Banti's Disease—Retinal Hemorrhages After Transfusion

A 12-year-old boy entered the hospital following severe hemorrhages from the stomach which began the day before admission—unconscious, exsanguinated. Retinae examined and found free from hemorrhages. Blood: Reds 1,150,000, W.B.C. 10,000, polys 72%, lymphs. 28%. Transfusion, citrate method, no typing, cross-agglutination, and 24 hours later there were seen in the right retina large peri-papillary and peripheral, streaked hemorrhages; the child had repeated transfusions; after the fourth transfusion one small pre-retinal hemorrhage was seen in the left eye. The spleen was enlarged; he continued to vomit blood. Observation and study led to a diagnosis of Banti's disease. The hemorrhages disappeared, the blood-picture improved somewhat, and after splenectomy there was a good recovery.

Case 42. Carcinoma of the Stomach—Secondary Anemia—Retinal Hemorrhages After Transfusion

A 55-year-old man, white, entered the Rhode Island Hospital with abdominal pain, loss of weight, vomiting and loss of appetite, three months duration. X-ray and operation established the diagnosis of carcinoma of the stomach. Because R.B.C. was 3,000,000 and Hgb. 40%, transfusion (citrate method) was done before operation. Twelve hours after the transfusion the retinae showed small, streaked hemorrhages along the veins just above the disc in the right eye; in the left eye some edema of the disc and retina. Patient and donor both type II.

Case 47. Carcinoma of the Cervix—Secondary Anemia—Retinal Hemorrhages After Transfusion

A 49-year-old white female entered the Rhode Island Hospital with complaint of moderate vaginal bleeding for one year. She had had radium treatment and X-ray therapy; because of severe bleeding for one day she was admitted to the hospital. R.B.C. 2,500,000, Hgb. 40%—transfusion Unger method, and 12 hours later the eye-grounds showed in the left eye several disc-size hemorrhages, blotchy in outline, about one disc-diameter from

the disc. These entirely disappeared in two weeks. Patient and donor both Type II.

In only cases 1 and 7 were the hemorrhages large enough or so located that they might cause serious harm to vision. Of the ten positive cases five were cases of blood-dyscrasia and the total number of cases in the whole series surely diagnosed as blood diseases was six; in four of the other five positive cases there had been much loss of blood and anemia lasting for more than three weeks, and in the fifth (cancer of the stomach in a man 55 years old) there was undoubtedly some retinal arterio-sclerosis.

Our conclusion from these observations is that retinal hemorrhage in some degree is a frequent sequel to blood transfusion; we have little evidence that, providing the usual precautions are taken to insure the compatibility of the bloods, the possibility of retinal hemorrhage is a contra-indication to transfusion, as severe hemorrhages occurred in only two cases of serious blood disease.

ANNOUNCEMENT

RE: GOITER CLASSIFICATION AND NOMENCLATURE

The American Association for the Study of Goiter would appreciate very much your giving wide publicity to its approval of the following classification and nomenclature:

Clinical Classification:

- Type 1—Non-toxic diffuse goiter
- Type 2—Toxic diffuse goiter
- Type 3—Non-toxic nodular goiter
- Type 4—Toxic nodular goiter

Nomenclature:

Our Association advocates a policy of using the simplest and yet the most descriptive terminology possible.

The use of proper names, while it is impossible to dispense with many well established ones in goiter literature, be discouraged; as should coined words invented to popularize a fad or fancy.

Emphasis should be made upon the importance of not confounding varieties and sequelae with types. The use of such terms as exophthalmic, hemorrhagic, cystic, adolescent, colloid, intra-thoracic, substernal and congenital are perfectly proper when used to describe varieties, but only constant characteristics should be used to designate types.

Thanking you very much for your cordial co-operation, I am

Fraternally yours,
J. R. YUNG, M.D.
Corresponding Secretary

THE RHODE ISLAND MEDICAL JOURNAL

Owned and Published by the Rhode Island Medical Society
Issued Monthly under the direction of the Publication Committee, 106 Francis Street

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Entered at Providence, R. I. Post Office as Second-class Matter.

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EDITORIALS

NOISES

The recent investigation of the Paris Medical Society of noise as a factor in ill health, together with its recommendations to the municipal authorities, naturally suggests that this matter which is receiving such wide-spread recognition might properly be brought to the attention of the Rhode Island Medical Society.

Quite recently, presumably as an aftermath of the exhaustive studies of the Board of Health of the city of New York, a consideration of the deleterious effects of unnecessary noise was given by a group of representative physicians of this city and a committee was formed to consider ways and means. The local press showed marked interest in the movement and offered its valued columns for deserved publicity. If the city government is not sufficiently impressed with the importance of the measure to enact suitable needed laws to control what is undoubtedly an important and rapidly increasing nuisance, the health authorities should take the initiative and place their unqualified approval upon what would appear to many as a distinct step in the conservation of health and happiness.

rious effects of unnecessary noise was given by a group of representative physicians of this city and a committee was formed to consider ways and means. The local press showed marked interest in the movement and offered its valued columns for deserved publicity. If the city government is not sufficiently impressed with the importance of the measure to enact suitable needed laws to control what is undoubtedly an important and rapidly increasing nuisance, the health authorities should take the initiative and place their unqualified approval upon what would appear to many as a distinct step in the conservation of health and happiness.

A malodorous garbage pail is disease producing, but a noisy radio, soprano, dog or social party may hold forth vociferously all night and there is no law to stop or prevent. As yet our culture in these parts has not advanced to a point where sleep is to be considered an important part of our hygiene or measures taken for its security or guarantee. There is however an ever increasing number of lay and medical thinkers who appreciate the fact that rest is as important as nutrition and that the individual is entitled to freedom from disturbing noise. While this is being written, the city of Boston is beginning a campaign against unnecessary noise and the city government has shown itself interested in the movement.

The functions of medical societies should not be limited to the hearing of learned discourses, to the presentation of medical and surgical methods, or to serve as a guarantee of the scholarship and respectability of its members. It should also include the exercise of its influence in divers good causes and the education of peoples and governments. It may be that our local societies might profit by the deliberation and action of our Parisian brethren and lend its aid and assistance in this necessary and worthy object. The cause would be immensely helped and the committee assisted, did the medical societies voice their views.

THE DOCTOR AND HARD TIMES

The present financial depression throughout the world has its effect on all sorts and conditions of men and, among others, on the doctors. If we leave out of consideration the losses to individual physicians dependent on the depreciation in value of securities which they happen to have possessed at the time of the crash, we still have the general effect on the work and prosperity of the profession to consider. This is dependent directly on the financial situation of the world in general. In one matter, however, the doctors are more fortunate than people in other walks of life—they are not out of work. However impoverished the people may become, they still persist in being ill and have to be cared for by somebody. Thus the free clinics are overcrowded and the practising physician, who, by the way, may be overworking in some of these clinics, finds that, though his private work keeps up, his income dwindles because people do not pay their bills.

Surgical practice becomes more and more restricted to operations of necessity only, and private hospitals and sanatoria are finding it hard to keep their beds filled. Funds for the support of medical research are very hard to obtain and a definite retardation in the advance of medical knowledge must result. The picture is an unpleasant one and blends well with the evidence of depressing economic conditions seen everywhere. Nevertheless we of the medical profession are in many ways more fortunate than are others. At least we have our jobs, with as much to do as ever. In spite of the necessity to get along on reduced income we can go ahead cheerfully. The conscientious doctor regards his income merely as a by-product of his work and he will carry on, consistently reducing his fees wherever the unfortunate condition of his patients demands such action, doing his best to conserve the health of his community and withal on his own part to "make both ends meet."

CHIROPRACTORS

"Such chiropractic-physicians shall be entitled to the same services of the laboratories of the State Public Health Commission as are available to physicians qualified to practice medicine by section 3 of chapter 159 of the general laws, and they shall be subject to the same duties and liabilities and entitled to the same rights in the practice of their profession as may be imposed or given by law or regulation upon or to physicians of other schools, except that they shall not write prescriptions for drugs for internal medication nor practice major surgery."

This is an excerpt from the Public Laws amending the chiropractic Act and passed in the January Session of 1931. It permits chiropractors the same privilege as those granted physicians except the prescribing drugs for internal medication and major surgery. What constitutes major surgery is not defined.

As the law now stands a candidate for examination for a chiropractic license must have attended an approved school of chiropractic for three years of 9 months each as a resident student. The preliminary educational requirement for entering a chiropractic school is a high school or its equivalent. The candidate must be 23 years of age at the time he applies for examination.

The examining Board consists of two physicians and a chiropractor. The subjects examined in are anatomy, physiology, histology, embryology, chemistry, laboratory diagnosis, hygiene and sanitation, philosophy of chiropractic, spinal analysis, pathology, physical diagnosis, practice of chiropractic, technique, clinical diagnosis, X-ray, first aid, gynecology and dietetics. The law requires that the Public Health Commission must approve of and sign the license of all candidates certified as successful by the Board of Examiners in Chiropractic.

Obviously the examination of candidates in medical subjects cannot be as rigid as those required of physicians, for they could not pass them because of the limited education which they receive. And yet, they are permitted to treat any kind of illness, to sign death returns and are given most of the privileges granted physicians. From time to time they will come to the State Legislature for further privileges as they have already done.

Even the best trained physicians know little enough about the diagnosis and treatment of disease and injury. And yet the State sees fit to put the stamp of approval on those who, because of the lack of education, know little about disease and its manifestations. This certainly shows little appreciation on the part of the public officials of their responsibility for the safeguarding the health of the individual, and public health in general. It should be obvious to any layman that all persons licensed by the State to treat sick and injured people should be required to pass the same examinations upon all subjects which bear upon functions and structure of the body and the manifestations of disease. This is not true at present and this state of affairs will continue until the medical profession as a unit demand a reform in the granting of the privileges of caring for the sick. Never were the standards and capabilities of the average physician greater than at the present time yet there are distinct signs of disintegration and decadence from this high quality of service since the bars have been let down to admit to public confidence ill guided, poorly educated and commercially inclined persons whose primary aim is to exploit human suffering.

DHOBI ITCH

ANSON B. INGELS, M.D.
EPIDEMIOLOGIST FOR RHODE ISLAND

In a series of observations from October, 1927, to the first of March, 1929, in the West Indian

Islands, chiefly on St. Croix, St. Kitts, Guadeloupe, Dominica, Martinique, St. Lucia and Barbados, we saw about 2,300 cases of ringworm of the hands, feet, inguinal and axillary regions. nail infections and infections of the skin on various parts of the body.

From July 15 to December 15, 1929, we saw about 400 similar cases of ringworm among the Navajo Indians in northeastern Arizona and northwestern New Mexico as well as some cases among the school children of various tribes at Fort Mojave in western Arizona on the Colorado River and cases in the Salt River subagency near Phenix, Arizona, among the Pimas.

During this series of observations, we failed to find a case of ringworm of the scalp. It was our intention, however, to gather data concerning the group somewhat loosely classed as Dhobi* or as sometimes, in the American tropics, called Cuban itch by the natives in the West Indies.

In addition to the observations noted, mention will also be made of a group encountered in hotels and transatlantic liners sailing out of New York City.

The first series of observations, those in the West Indies, was largely among the native negro population, as we saw only about 400 cases among the white inhabitants.

Exact statistics are not available in either series, the majority of the first coming under observation from medical work aboard ship with observations, in a few instances, in cases seen ashore in the islands with local physicians; the second coming in routine dispensary work in the Indian agencies mentioned, in which clinical records were kept by natives and who, in many instances, failed to record diagnosis. A part of these cases were also seen in dispensary work when no records whatever were kept of the writer's dispensary activities.

During these two series, we found *Tenia Cruralis* to be the most common causative factor, the second being the *Epidermiphyton Rubrus*. We also observed *Tenia Alba* as well as the various *Trichophytons*. Species of *microsporum* were observed in isolated instances. These were all demonstrated by cultures—usually on corn meal media—as well as direct microscopic identification. In the West Indies, we observed that washed clothing that was dried on grass, old fences, bushes and the roofs of huts, was infective, while clothing suspended from a rope or line seemed to be free from the

*From the Hindustani Dhobi Wallah (Washerman).

spores. This observation was confirmed at the Municipal Hospital, in charge of the medical personnel of the United States Navy at St. Croix in the Virgin Islands.

The feet of bare-footed negroes were not infected but the crural regions of over 2,000 males observed showed over 90% infected. Of over 700 negro women examined, we got about 40% infections, chiefly between the fourth and fifth toes, the great and second toes, the submammary fold and the axillary spaces. Of the white residents, the majority of the infections were on the toes, second, the crural region and third, the axillary. The spores, however, seemed to have no predilection for any particular site, for in treating 62 cases in a ship's crew, we found two infections of the external auditory canals, five of the flexor surface of the elbows, one on the back, one over the deltoid, one in the eyebrows and two in the popliteal spaces. Practically all infections of the feet of long standing revealed infection of the nails. The most common site of infection between the toes was between the fourth and fifth toes, the second favored site being between the great and second toes. All of the cases mentioned, however, showed other areas of infection; either the toes, the crural or axillary regions or all such sites. Among the Indians, the crural and axillary regions seemed to be the favored locale, although invasions of other regions were observed—one, particularly, on the backs of both hands without other affected parts. This was in a Navajo, named Harvey Manygoats, who was a sheep raiser, and the writer treated the case for four weeks as an Epidermitis Venenata, thinking it either a weed irritation or Lanolin eruption from handling wool. Infections of the Navajo women were in the axilla, the hands and nails, the elbow flexor surfaces, between and over the breasts, particularly in the submammary fold and on the sides contiguous with the axilla and mammae. It will be noted that the Indians, particularly the Navajos, live in the desert and bathing facilities are almost lacking owing to the scarcity of water. Also they are nomadic, stock raising people and their crude camp impedimenta prohibits elaborate preparation for personal hygiene.

The Indian school children, while in the schools where bathing facilities are better, seemed to show less infection than the adults. However, infections on these children were observed between the fourth and fifth, the great and second toes and the axilla. Infection was proportionately greater among the

male children. Among the Pimas, the incidence of infection was high.

In the West Indies the negro population is in the water, chiefly salt water, at least once daily. Bathing with the white residents will vary from the usual morning bath to the morning bath and four or five showers daily.

We observed both in the West Indies and among the Indians that the favored method of drying freshly washed clothing was tedding it on the grass or rocks. Rarely was clothing put on the line for drying. In both localities we also observed the same variety of small lizard, called in Dominica a "gecco" on account of the cry it utters, that would bask on drying clothing, particularly on sheets and white clothing, in the hot afternoon. In the matter of this particular reptile, we noted it was always on washed clothing, particularly in the Island of Dominica. We observed this also in northeastern Arizona. The natives of both places state that the lizard will produce sores on the hands handling it. This we believed to be old wives' tales, but placed several in different suspended sheets that had been freshly sterilized. We always found *E. Rubrus* and *T. Cruralis* left in the dependent middle of the loosely stretched and sagging sheets. We noted also, certain inflamed areas on natives' hands said to be caused by handling lizards. We never were able to produce ringworm from the spores deposited on the sheets nor have we seen a case of tenia produced from handling the reptiles. While the areas of inflammation produced by them were roughly circular, they were transient and we were never able to isolate spores or fungus from such areas.

It was our observation in this series that there seemed to be slight communicability by direct contact from person to person. Contact infection of different parts of the body were frequent; by apposition, as in the axillary region, and by finger and hand infection of different parts of the body. On the other hand, we noted women living in intimate contact with infected husbands who themselves were free from ringworm. Conversely this was also observed in the case of infected wives and non-infected husbands. Wet or damp boards, particularly wooden gratings under showers on ships and in public baths, were noted as foci of infection. Clothing, freshly washed and lightly ironed, was a source of infection. All infective clothing seemed to have been dried on grass, stones, fences or bushes.

The author also noted over a hundred cases with the history of infection from bathtubs in the higher class hotels in New York City, and over two hundred cases infected from bathtubs on transatlantic liners where salt water was used in the tubs. In the public bathrooms on transatlantic liners, the bath mats are rarely changed for individual baths. Observation in the above cases did not lead to isolation of productive spores, diagnosis being made clinically. Dry gratings and bath mats failed to produce living spores after two hours in the sun, they being thoroughly dry before sunning. Spores were found on dry mats after two days in the shade. Living spores were not observed on dry clothing ironed with a hot iron; spores were found on damp clothing that had been ironed with a hot iron. Living spores were found on such ironed clothing eight days after ironing and packing in dark lockers and drawers. No living spores were found on dry clothing after four hours exposure to full sun. Living spores were not found in clothing that had been boiled for twenty minutes.

Live spores were constantly found on damp warm gratings and wooden floors of public bath and shower rooms. They were almost constantly found on tiled floors and the interior of porcelain bath tubs in the better type baths of the West Indies, on ships and in hotels in the United States. This condition obtained particularly on ships and in hotels where the bathrooms are dark and was noted on dry tiling and in dry bathtubs. The ordinary bath mat seemed also to be a prolific focus of infection.

Spores were found in shoes and slippers in daily use and where socks or stockings were worn. Bridle reins of plantation overseers yielded *E. Rubrus*. Boxing gloves on shipboard showed *T. Cruralis*.

Sailors were more free of infection than stewards and firemen on shipboard. Sailors usually wash their own clothing in individual buckets.

The white population of the West Indies showed a high incidence of infection owing to the use of bath houses and bathing machines on beaches and they were more or less constantly under treatment with remedies running the entire gamut of parasiticides, all of which seemed only palliative, due, possibly, to constant reinfections.

It was observed that certain cases cleared up upon removal of the source of infection without further treatment. Other cases, removed from sources of reinfection, had been under more or less constant treatment for years without appreciable

benefit. Old "scaloped" areas of infection were observed in the crural region four years after the subsidence of acute symptoms and in some of these cases the author believes he has isolated embryonic forms of the spores that seem to be clinically quiescent. He has never been able to make successful cultures of these.

It is the belief of the writer that the life history of *T. Cruralis*, *T. Alba* and the epidermiphytones, particularly that of *E. Rubrus*, is not fully known or understood. The facts of the histories of invasion and of non-invasions from person to person would seem to indicate this. There is also a remote possibility of a reservoir of these spores, evinced by the experiment of the lizards and the sheets. The inability to inoculate with spores direct from these would suggest the need of further development or morphic changes before the possibility of human invasion.

Providence, Rhode Island, July 9, 1931.

REPORT OF A CASE OF CHOANAL ATRESIA

By J. N. FISHBEIN, M.D.

203 THAYER STREET, PROVIDENCE, R. I.

Congenital occlusion of the posterior nares is a rare condition. A survey of the literature made by Rogers¹ in 1925 revealed only 165 cases of congenital obstruction of the posterior nares in the literature of all countries.

The obstruction in a majority of cases is bony. Opinions vary as to which bone gives origin to the occlusion. Kundrat and Schrotter think that it is the vertical plate of the palate bone, while Luschka believes that the horizontal plate of the palate bone is the bone involved. In many cases a great thickening of the posterior end of the vomer has been noted. In some cases, however, the partition may be membranous or a combination of both—membrano-osseous. The condition also may be partial or complete, unilateral or bilateral.

Fraser² compiled a series of cases and describes the symptoms as follows:

Inability to breathe through one or both sides of the nose; anosmia; collection of mucus in the nasal cavity; dermatitis of the upper lip due to constant moisture of the part. The following symptoms were noted less frequently; abnormally high palate, asymmetry of the face and body; hypertrophic

nasal catarrh; catarrhal or suppurative otitis media and mental defects. To these may be added: history of asphyxia from the time of birth and frequent attacks of suffocation, symptoms which this case presented. One of the earliest reports of operation on this condition in this country is by Wilkerson,³ of North Carolina, who reported a case of bilateral occlusion in 1882 which was successfully operated upon by means of a revolving curved trocar.

Congenital atresia is usually of congenital origin. Vogel⁴ has drawn attention to the congenital changes in the face and adjacent structures associated with choanal atresia. Braun and Clasen have shown that a certain amount of air change takes place in the sinuses during respiration. These air changes in the sinuses must necessarily greatly enhance the action of the ciliated mucous membrane of the sinus in promoting adequate drainage. The free ventilation of the nose is one of the most potent factors in the prevention of sinus disease and in the cure of an early existing sinus infection. As no air current is possible through a nose the posterior end of which is blocked, it must become apparent that the sinuses on the side of a choanal atresia are particularly susceptible to infection. Dean⁵ reports: "In cases of congenital atresia that have come under my care, all the children have suffered from paranasal sinus infection."

Treatment of Choanal Atresia:

The treatment of these conditions is always operative and preferably as early in life as possible, as secondary changes in the facial structures or complications in the adjacent sinuses are thus avoided. Kirby⁶ also recommends that these operations be done early in life because of the thinness of the occluding plate or membrane. The disadvantages being the limited space for operation and the oblique angle at which the choanal openings are placed.

The operation consists briefly in cutting through the occlusion, with a subsequent smoothing of the free edges—many operators favor the removal of the posterior portion of the vomer, but Jaques⁷ expresses the belief that a simple resection of the fibro-osseous membrane without sacrificing any of the septum is sufficient if the patient is capable of carrying out through a period of several months a daily course of catheter treatments. Loeb,⁸ in his textbook, says, "Some authors remove the bony

occlusion through a submucous resection, but there is no advantage in this procedure, and the difficulties of the operation are greatly increased."

The after-care varies according to the operation. The treatment followed out in this case was that recommended by Brady.⁹ He passed a folded strip of bismuth gauze through one nostril; this was caught in the nasopharynx by a dressing forceps, passed through the opposite side of the nose and was drawn forward through this side. The two ends were then tied around the columella. This knot was untied daily and a fresh strip was attached to one of the free ends and drawn through the nose and tied as before.

Case Report

The discovery of the occlusion of the posterior nares in this case was entirely accidental and the author claims no credit for its discovery. The facts attending are sufficiently interesting and present certain unusual features to make the case worth presenting.

History: R. S. Age 8. Complained of difficulty in breathing and had a cough simulating whooping cough. There was a history of asphyxia from the time of birth and frequent attacks of suffocation. The child was unable to attend school on account of the cough and also because of the fact that she occasionally would have spasms of coughing and become cyanotic to an alarming degree. These attacks would occur particularly when she had a cold with hypertrophy of the tonsils contributing in obstructing the breathing. These attacks were frequent, as she was susceptible to colds. She had been referred for tonsillectomy and adenoidectomy from the out-patient departments of two hospitals but because of her severe cough was discharged in each instance. She had been examined by several physicians at home who had been called in during attacks and the usual nose drops and cough medicine were prescribed with little results. The child had lost the sense of smell. Examination of the hearing showed a 12 unit loss in both ears.

Examination: The patient was first seen during one of her attacks. She lay in bed gasping for breath. The nose was full of a muco-purulent secretion. The tonsils were considerably hypertrophied, almost meeting in mid-line. Posterior rhinoscopy was impossible under the circumstances. The palate was high but without deformity. She had the dull appearance that is usually attributed to habitual mouth breathing. The chest was pigeon-

shaped and full of rales similar to an acute respiratory infection. St. Clair Thompson¹³ makes this worthwhile contribution, "It is noteworthy that this *complete atresia* of the nose, even with entire mouth breathing, does not entail the chest deformity, narrow nostrils, alar collapse, deflection of the septum and changes in the ears which are frequently attributable to *partial stenosis*, or to chronic nasal infection, or to both.

The patient was sent into the hospital for tonsil and adenoid operation although the cough persisted and there was considerable nasal discharge.

The tonsils and adenoids, both of which were hypertrophied, were removed. The patient took the anaesthetic poorly. Following the operation the nose was examined, resulting in the discovery of the occlusion. The author makes use of a nasal dilator of his own modification, as a routine procedure. This dilator has long, narrow, thin blades (made by Pilling & Son, Philadelphia, Pa., and is passed along the floor of the nose to the nasopharynx, one blade in each nostril. Normally the blades encounter no resistance. Where resistance to the passage of the blades is found the cause is investigated. Usually infraction of the inferior turbinates is sufficient to overcome this difficulty. In the case under discussion resistance was encountered in passing the instrument into the nasopharynx. Examination disclosed the presence of an incomplete, bilateral, membranous partition. This membrane was removed with a long pair of biting forceps and a punch and treated post-operatively in the manner previously described. The patient made an excellent recovery. The nasal infection cleared up under treatment, and the mouth breathing was overcome. The cough likewise disappeared within three months. One year following the operation on the choanal atresia, the openings were still found to be present and adequate.

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CASE REPORTS

CLINICAL-PATHOLOGIC CONFERENCE

Held at the Rhode Island Hospital Tuesday, October 13, 1931. Cases presented by Dr. Harold G. Calder. The following mimeographed histories were passed out.

P. J.: Age, 18 months. Admitted June 30, 1931.

C. C. Mass in the abdomen. Loss of weight and appetite.

P. I. Six months ago child had a cold and some fever. Since that time there have been some symptoms of cold and some fever. The child has eaten less and less, and has lost weight rapidly. Local doctor has made the diagnosis of teething.

F. H. Negative.

P. H. Child has been healthy. Was weaned at one month. She lives in a country town and has been taking milk from a neighboring farmer whose herd has not been Tb. tested.

Physical Examination

Fairly well developed and poorly nourished, showing evidence of recent loss of weight. There are a few small lymph glands palpable in the neck, axilla and groin.

Mouth, throat and chest are negative.

Abdomen extended. The umbilicus protrudes. There is an irregular mass which extends from umbilicus to the pelvis; it is movable and feels like a lot of small glands which have become matted together. There are other small glands palpable throughout the abdomen. The spleen and liver are palpable. There is no abdominal tenderness.

X-ray of chest shows a suggestion of fine mottling in both lung fields. A barium enema shows no abnormality.

Specimen of stool strongly positive for blood.

Urine normal.

W.B.C. 12,200. 53% polys.

The Tb. reaction is positive.

Temperature varied daily between normal and 104. Child lost ground steadily and died July 5, 1931.

G. D.: Age 3 years. Admitted July 25, 1931.

C. C. Loss of appetite and irritable.

P. I. He has been ill for nine weeks and was treated for intestinal grippie. He has not been complaining but has been running a fever. He vomited three times within the last week.

F. H. Negative.

P. H. Negative. He lived in the same town and drank milk from the same herd as the first patient, P. J.

Physical Examination

Fairly well developed, under-nourished child.

Glands palpable in the neck.

Chest negative.

Abdomen tense and tympanitic. Liver and spleen not palpable. There were some small masses felt, probably glands.

X-ray of abdomen shows no calcified glands.

Film of the chest shows moderate increase in the extent of the lung markings.

Urine normal.

W.B.C. 6,600 with 80% polys.

Tuberculin test positive.

His temperature varied daily between 98 and 103 or 104 with a great deal of irregularity. General condition stayed stationary until the middle of September, when vomiting began and his appetite failed. He developed pulmonary oedema, became cyanotic and died on September 22, 1931.

DR. CALDER: "We have two patients whose histories are almost identical so we will report them together.

"The first one is a child 18 months old, admitted to the hospital on June 30 complaining of mass in abdomen and loss of weight and appetite. History: Six months previous, etc. (see abstract). Local M.D. made a diagnosis of teething. Family history was negative. The child had always been in good health. Fairly well developed and poorly nourished showing evidence of recent loss of weight. There were a few lymph glands palpable in the neck, axilla and groin. No more than you would expect from a child who had lost as much weight as this one. There was nothing further additional to what I have mentioned. The child failed very rapidly.

"Second case: Child, three years old. He has been ill for nine weeks and was treated for intestinal grippie. He has not been complaining but has been running a fever. He vomited three times within the last week. He died nearly two months after admission to hospital. For quite a period of time his general condition stayed apparently the same.

"In these two cases the diagnosis does not present any problem. With the onset, the loss of weight, the spike-like temperature, positive tuberculin reaction, there is nothing to diagnose except tuberculosis of the intestinal tract. With this course, particularly in the first child, there was probably also a miliary process involving other organs."

Demonstration of X-Ray Films

DR. BOYD: "I should say this is the barium enema with the colon completely filled except in the portion of the transverse structure. There is no evidence of pathology there. The chest does not show evidence of positive fluid. This was taken for the abdomen and it is a negative film. I don't believe the X-ray helps any in that diagnosis. This is the chest of the second patient. I should not say there is anything remarkable about the chest. The markings may be a little increased but that could be due to a number of different infections. I could not say it looks like a tuberculous thing. These films of the abdomen show nothing abnormal."

Demonstration of Postmortem Material

DR. CLARKE: "The cases were almost identical. One was younger. In the younger the process seemed to be more acute. In the glands there was no calcification. We will look at the youngest one first.

"This is the mesentery. Just a mass of large glands about 2 or 3 c.m. in diameter and cross section shows some caseation throughout that mass. Here is the gut from that particular case. There was not much to see externally. On the mucosal surfaces there are numerous ulcerations. They are most numerous in the ileum. The other child is very similar. Here, however, you can see on the serosal surface little accumulations of tubercles. Wherever we see these tubercles on the surface if we open the gut we will find an ulcer of the mucosa (demonstrates). Unfortunately, we did not save other organs but in both of these children there was a miliary tuberculosis involving lungs, spleen and liver in each case."

(Slides illustrating the histology were then shown by means of the microprojector.)

Discussion

DR. CALDER: "Although these cases are not particularly hard in regard to making a diagnosis they teach many things. The treatment for this type of tuberculosis is practically hopeless. The treatment for tuberculosis must always remain prophylactic. This should teach us the importance of milk supply. It is probable that 50% of all cases of abdominal tuberculosis in children is of bovine origin."

DR. BATES: "I was particularly interested in milk about eight years ago when I had the opportunity to see a patient who had cervical and abdominal tuberculosis. She comes in about twice a year and she is all scarred. When they looked back and found where the milk supply was coming from, it was found the milk was coming from a one-cow herd belonging to a doctor who was a neighbor. At autopsy of the cow the udder was found tuberculous. We know that a great deal more react among the rural population, that bovine tuberculosis is greater in the rural population than in the city. I wish that you could see what can happen from tuberculous milk. I feel that the only way to eradicate tuberculous milk in this state is the area testing plan. All the farms in New Hampshire up to twenty and thirty of the larger herds have large placards on the outside of the barn stating that it is a tuberculous free farm. If they can do it up there I don't see why we cannot do it here. It is a very interesting question and I have become quite keen about it. I have visited a good many of the finer farms in the east and I have noticed when the annual account is being taken the death of a cow doesn't seem to mean much if their herd is free from T. B.

"In closing I want to relate one interesting experience. I was visiting one of our fine farms when someone said to me, 'You know, I don't think the doctors know very much about milk.' I wish the doctors appreciated more what a tuberculous free milk means. I think we ought to get our farms on the same basis as the farms in Vermont. Many believe the only way to do so is to make it a law."

DR. BUFFUM: "I agree with Dr. Bates. In the City of Providence we have certified milk and grade A milk. All the rest has to be pasteurized. In the rest of the State there is no such law. We go outside of the City and take our own families and it is certainly essential that it should be done."

DR. CLARKE: "There is just one point that I think has not been brought out. Testing the cows

is not all that is necessary. That is, of course, important and as physicians we should all be heartily in favor of it. But in these particular cases it was discovered that one of the workers who was handling the milk was an active tuberculosis. It is a big problem and testing cows, while it should be a great help, is not all that needs to be done."

SOCIETIES

PROVIDENCE MEDICAL ASSOCIATION

The regular meeting of the Providence Medical Association was called to order by the President, Dr. John E. Donley, Monday evening, October 5, 1931, at 8:55 P. M. The records of the last meeting were read and approved.

The Standing Committee having approved their applications, the following gentlemen were elected to membership in the Association: Mario A. Castallo, James Henry Cox, Abraham Henry Fox, and Richard Ellis Haverly.

The program of the evening consisted of a symposium on "The Diseased Gall-Bladder." Dr. Harvey E. Wellman opened the discussion by a paper on "The Clinical Problem." He mentioned important differential points in the diagnosis of gall-bladder disease; listing peptic ulcer, cancer of the stomach, pyonephrosis, pneumonia, pleurisy, catarrhal jaundice and herpes zoster as diseases not infrequently confused with this condition. He believed the treatment to be primarily, surgical, but gave methods of alleviating the disease by medical means.

Dr. Philip Batchelder followed with an account of "The Radio-logical Aspect." He pointed out the very unsatisfactory status of this mode of investigation prior to 1923 when cholecystography was introduced by Graham. He stressed the fact that this test is one of function of the gall-bladder, and should be part of a complete gastro-intestinal examination. Graham and Cole give the dye, tetraiodophenolphtholein, intravenously; many others now give it by mouth; the latter is coming to be the method of choice.

He presented a study of 51 cases studied at the Rhode Island Hospital and subsequently operated upon; in these a diagnosis of diseased gall-bladder was confirmed in all cases. In four other cases a report of normal gall-bladder was disproved by operation and subsequent pathological examination.

Dr. B. Earl Clarke then discussed the "Pathology" limiting his remarks to chronic cholecystitis. He illustrated his remarks with a series of very beautiful photomicrographs made in color, which showed the abnormal histology in detail. These color plates showed the very great variation in the pathological states covered by the term "chronic cholecystitis."

"The Treatment" was discussed by Dr. Arthur T. Jones. He pointed out that our ideas about the treatment of the acute gall-bladder have recently undergone great change. He feels that immediate removal is the treatment of choice in this condition, rather than waiting for the condition to subside. He opposed simple drainage in empyema of the gall-bladder, believing removal preferable. This same treatment should be followed in cholelithiasis. He urged that operation be undertaken early before serious complications have had an opportunity to develop. Delayed operations have a much higher mortality and their results are otherwise less satisfactory.

The symposium was discussed by Drs. Gray, Wing, Cummings, Gerber, Hughes, Bray, Leech, and Burgess.

The President appointed Drs. Arthur T. Jones, Hale and Belliotti as a committee to prepare a suitable obituary notice for Dr. Madden.

The meeting adjourned at 10:55 P. M. Colation was served. Attendance 108.

Respectfully submitted,

WILFRED PICKLES,
Secretary Pro Tem.

HOSPITALS

THE PROVIDENCE LYING-IN HOSPITAL

The regular monthly meeting of the staff was held Thursday, Oct. 8. Thirty-three members attended. The marked increase noted at the Federal Hill House Prenatal Clinic brought forcibly to everyone's attention the fact that the charity work done by this hospital is growing very rapidly but not out of proportion to the amount of unemployment. It was voted to request an increase in the number of physicians at the Prenatal Clinic.

Several interesting case reports were read and discussed. Some of these will be presented in this JOURNAL at a later date.

Dr. Richard E. Haverly completed his service as resident and entered practice. Dr. Richard Neill

became resident Oct. 1, 1931. Dr. Alfred Baker completed his affiliation and returned to the Rhode Island Hospital. Dr. Paul Johnson completed his affiliation and returned to the New England Medical Center.

It was reported that applications for post-graduate training for nurses have averaged sixty a month for six months. All classes have been filled, up to and including August 1, 1932. Lack of a nurses' home has necessarily limited the number to be accepted.

EDWARD S. BRACKETT, M.D.,
Secretary.

ANNOUNCEMENT

THE AMERICAN COLLEGE OF PHYSICIANS

The Sixteenth Annual Clinical Session of the American College of Physicians will be held in San Francisco, California, April 4-8, 1932. The headquarters in San Francisco will be the Palace Hotel, where the general scientific sessions, registration, and exhibits will be held. Clinics will be conducted in various hospitals and institutions in San Francisco and near-by communities.

Dr. S. Marx White, Minneapolis, President of the College, has in charge the selection of speakers and subjects on the general program, while Dr. William J. Kerr, San Francisco, Professor of Medicine at the University of California Medical School, is the General Chairman of the Session, and is responsible for all local arrangements, in addition to the arrangement of programs and demonstrations. Following the San Francisco Session a post-convention tour will be conducted through Yosemite Valley, Southern California, (with two days in Los Angeles) and the Grand Canyon of Arizona.

The attention of the secretaries of various societies is called to the above dates, in the hope that their societies will select non-conflicting dates for their 1932 meetings.

MISCELLANEOUS

REINFORCED ORAL VACCINES

The historical assumption that the normal intestinal mucosa offers a 100 per cent effective barrier against absorption of bacteria is rapidly giving

place to the conviction that gastro-intestinal microbic absorption is probably a normal physiologic function or, at least, a phenomenon that does not necessarily imply a local abnormality or lesion of the mucosa. The parenteral history of gastro-intestinally absorbed micro-organisms thus becomes a problem of normal physiology and is no longer of exclusive interest to pathologists. Arnold and his co-workers of the Illinois State Department of Health report convincing evidence that there is this normal physiologic bacterial absorption and suggestive evidence of a physiologic "cyclic circulation" of bacteria from the intestinal tract, through the systemic blood vessels, with fractional return to the intestinal lumen.

Arnold's experimental evidence was derived from fasting dogs. The abdomens of these animals were opened under ether anesthesia, and suspensions of *B. prodigiosus* were injected into the duodenum. At varying intervals after this injection, blood samples were drawn from the femoral artery and their bacterial content determined by plating methods. Within four minutes, *B. prodigiosus* was demonstrable to the number of 150 in each cubic centimeter of the femoral blood, the number decreasing to about 20 viable micro-organisms per cubic centimeter by the end of twenty minutes. The femoral blood became sterile within forty minutes. To reinforce this normal absorption, control injections were made with the same micro-organisms suspended in raw egg-white. Intraduodenal injections now led to the appearance of 450 viable micro-organisms per cubic centimeter of femoral blood, with 10 micro-organisms per cubic centimeter still demonstrable at the end of fifty minutes. The mechanism of this egg-white acceleration was not determined by the investigators though they were inclined to attribute it to a toxic increase in gastro-intestinal permeability.

To reverse the experiment, bacterial suspensions were injected intravenously and recovery was attempted from the intestinal contents. Within twenty-five minutes after intravenous injection of *B. prodigiosus*, 50 viable micro-organisms per swab culture were demonstrable in the upper half of the small intestine, with rapidly decreasing numbers in the lower portion of the small bowel. The cecum was sterile. By a preliminary injection of egg-white into the upper part of the intestine this rate of "excretion" of circulating micro-organisms into the intestine was accelerated sixty fold, each swab

culture now containing 1,200 viable micro-organisms. The metaphorical "cyclic circulation" was demonstrated by combining these two technics, the micro-organisms being introduced into one isolated intestinal loop, and recovery attempted from a second ligated intestinal segment. Test micro-organisms injected into a duodenal loop, for example, were recovered from the jejunum, with duodenal recovery following jejunal injection. The rate of this "cyclic circulation" was increased from four to ten times by a simultaneous injection of raw egg-white.

The test micro-organism was selected on account of its pigment production and resulting ease of identification. This organism is much smaller than the average intestinal bacillus, so that much work must be done before the alleged results are shown to be universally applicable to oral vaccines. That they have a limited application, however, is shown by Arnold's reported success with egg-white-reinforced oral vaccines against typed pneumococci. Young rats were given a preliminary feeding with raw eggs and thirty minutes later were fed typed pneumococci, control tests being made with rats given the same typed vaccine but without the preliminary raw-egg feeding. Five days after oral vaccination each series was titrated for its pneumococcus resistance by intraperitoneal injection with graded doses of virulent pneumococci. The average pneumococcus tolerance of the control vaccination series was 300 minimal lethal doses of the virulent culture. The average for the egg-white-reinforced vaccinations was 75,000 minimal lethal doses, or roughly 250 times the control vaccination success.

Clinicians who plan to study such reinforced oral vaccines must guard against erroneous conclusions from the obsolete assumption that precipitins, agglutinins and other test tube "antibodies" are quantitative indexes of specific immunity. Victor Ross, who has made extensive studies of such vaccines, has shown that neither precipitins nor agglutinins are found in the serum of rats orally immunized against typed pneumococci. In attempted clinical immunizations by the same technic, Ross found that in many cases test-tube "antibodies" are apparently not formed, in spite of the fact that a well developed pneumococcus immunity can be demonstrated by specific serum transfer to mice.—*Jour. A. M. A.*